

UNCLASSIFIED

EXHIBIT R-2, FY 2001 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604245N

PROGRAM ELEMENT TITLE: USMC H-1 Upgrades

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
H2279 4BW/4BN Upgrade	116,746	183,266	139,680	48,960	18,286	9,451	0	0	676,698
TOTAL	116,746*	183,266**	139,680	48,960	18,286	9,451	0	0	676,698

Quantity of (4) RDT&E Engineering and Manufacturing Development (EMD) test articles were placed on contract prior to FY98 and remanufacture commenced in FY99

*The FY 1999 budget reflects a \$23,400K Congressional add for USMC H-1 Upgrades (Project H2419) which has been revised by \$736K for Congressional undistributed adjustments.

**The FY 2000 budget reflects a \$26,600K Congressional add for USMC H-1 Upgrades (Project H2419) which has been revised by \$148K for Congressional undistributed reductions.

- A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the AH-1W attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1N utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft that remanufacture AH-1W/UH-1N's into AH-1Z/UH-1Y's include: a new 4-bladed, composite rotor system with semi-automatic blade fold, new performance matched transmissions, T700 Engine Digital Electronic Control Units (DECUs), new 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, tail pylon structural modifications, and common, fully integrated cockpits and avionics systems. This remanufacture will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits will reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of on-board mission planning, communications, digital fire control, self-navigation, night targeting, and weapon systems management in nearly identical crew stations reducing training requirements. This remanufacture maximizes commonality between the two aircraft and provides needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RDT&E because it encompasses Engineering and Manufacturing Development of new end-items prior to a production approval decision.

R-1 Item No. 90

UNCLASSIFIED

UNCLASSIFIED

R-1 Item No. 90
UNCLASSIFIED

UNCLASSIFIED

EXHIBIT R-2a, FY 2001 RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604245N

PROJECT NUMBER: H2279/H2419

PROGRAM ELEMENT TITLE: USMC H-1 Upgrades

PROJECT TITLE: 4BW/4BN Upgrade/UH-1

Upgrades

(U) COST: (Dollars in Thousands)

<u>Project Number & Title</u>	<u>FY 1999 Actual</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>	<u>Total Program</u>
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R-1 Item No. 90

UNCLASSIFIED

UNCLASSIFIED

EXHIBIT R-2a, FY 2001 BUDGET RDT&E,N BUDGET PROJECT JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604245N

PROJECT NUMBER: H2279/H2419

PROGRAM ELEMENT TITLE: USMC H-1 Upgrades

PROJECT TITLE: 4BW/4BN Upgrade/UH-1

Upgrades

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

1. FY 1999 ACCOMPLISHMENTS:

- (U) (\$34,823) Conducted successful avionics hardware and software Critical Design Reviews (CDR's) and continued avionics design and integration. Commenced mission computer software coding.
- (U) (\$71,358) Concluded successful airframe CDR and completed all Request For Actions (RFA's). Commenced successful transmission and drive train bench test, Structural Test Article (STA) test, aircraft initial manufacture and assembly and performed crash load analysis.
- (U) (\$ 2,181) Delivered EMD test aircraft to Bell Helicopter Textron, Inc and performed tear down for aircraft remanufacture.
- (U) (\$ 6,984) Performed integrated logistics support tasks including level of repair analysis, failure modes effects and criticality analysis, logistics support analysis, reliability centered maintenance analysis, and documentation.
- (U) (\$1,400) Continued live fire test and evaluation effort of aircraft subassemblies and procured Developmental Testing (DT) ordnance.

2. FY 2000 PLAN:

- (U) (\$142,683) Continue transmission bench test, complete STA testing, and continue tooling validation, complete flight test planning, complete assembly of first AH-1Z & UH-1Y aircraft, conduct test readiness reviews; and commence aircraft instrumentation system level functional testing and aircraft ground testing.
- (U) (\$ 24,983) Complete development of integrated avionics and perform bench functional checks. Continue mission computer software coding.
- (U) (\$ 14,800) Continue integrated logistics support tasks including level of repair analysis, failure modes effects and criticality analysis, logistics support analysis, reliability centered maintenance analysis, and documentation.
- (U) (\$ 800) Continue component fatigue testing and live fire test and evaluation.

3. FY 2001 PLAN:

- (U) (\$ 54,975) Conduct pre-flight ground test and first flights of AH-1Z and UH-1Y; continue mission computer software coding.
- (U) (\$ 14,893) Complete transmission bench testing and aircraft drive train validation.
- (U) (\$ 44,436) Complete tooling validation and assembly of remaining EMD aircraft including structural testing.
- (U) (\$ 24,676) Continue integrated logistics support tasks including level of repair analysis, failure modes effects and criticality analysis, logistics support analysis, reliability centered maintenance analysis, integrated mechanical diagnostics, and documentation.
- (U) (\$ 700) Continue live fire testing of complete aircraft.

R-1 Item No. 90

UNCLASSIFIED

UNCLASSIFIED

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PROGRAM ELEMENT TITLE: USMC H-1 Upgrades

PROJECT TITLE: 4BW/4BN Upgrade/UH-1 Upgrades

(U) B. PROGRAM CHANGE SUMMARY

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget:	120,254	157,683	108,820
(U) Appropriated Value:	121,942	184,283	
(U) Adjustments from President's Budget:	- 3,508	+ 25,583	+30,860
(U) FY 2001 President's Budget Submit:	116,746	183,266	139,680

CHANGE SUMMARY EXPLANATION:

Funding: The FY1999 net decrease of \$3,508 thousand consists of a decrease of \$3,168 thousand for a Small Business Innovative Research (SBIR) assessment, a decrease of \$552 thousand for inflation adjustments, and an increase of \$212 thousand for a crash load analysis BTR. The FY2000 net increase of \$25,583 thousand consists of a congressional increase of \$26,600 for 4BN/4BW Engineering and Manufacturing Development completion and a decrease of \$1,017 thousand for an Across-the-Board Congressional rescission. The FY2001 net increase of \$30,860 thousand consists of an increase of \$32,200 for Acquisition Stability Reserve-funding for drive train testing, tooling validation, and mission computer software, a net decrease of \$385 thousand for Strategic Sourcing Plan savings and Navy Working Capital Fund (NWCF) adjustments, a decrease of \$842 thousand for reprioritization of requirements within the Navy, an increase of \$781 thousand redirected from APN-1 (P.E. 017800) for Integrated Mechanical Diagnostics (IMD) development, an increase of \$58 thousand for Military and Civilian Pay, and a decrease of \$952 thousand for revised economic assumptions.

(U) Schedule: Not Applicable

(U) Technical: Not Applicable

(U) C. OTHER PROGRAM FUNDING SUMMARY

<u>Appn</u>	<u>FY 1998 Budget</u>	<u>FY 1999 Budget</u>	<u>FY 2000 Estimate</u>	<u>FY 2001 Estimate</u>	<u>FY 2002 Estimate</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>	<u>FY 2005 Estimate</u>	<u>To Complete</u>
APN-1					125,624	223,166	308,985	377,131	1,902,343
Qty					5	17	24	36	198

FY01, FY02 and FY03 Integrated Mechanical Diagnostics (IMD) development is redirected to P.E. 0604245N

Related RDT&E

(U) P.E. 0604212N, ASW & Other Helo Developments
0603266N, AH-1T Comp Rotor Blade

R-1 Item No. 90

UNCLASSIFIED

UNCLASSIFIED

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PROGRAM ELEMENT: 0604245N

PROJECT NUMBER: H2279/H2419

PROGRAM ELEMENT TITLE: USMC H-1 Upgrades

PROJECT TITLE: 4BW/4BN Upgrade/UH-1 Upgrades

(U) D. ACQUISITION STRATEGY: The H-1 Upgrades is an ACAT ID program which encompasses Engineering and Manufacturing Development of new end-items prior to a production approval decision. The prime contract is sole source to Bell Helicopter Textron, Inc. and is a remanufacture of AH-1W and UH-1N aircraft.

(U) E. SCHEDULE PROFILE

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To Complete</u>
(U) Program Milestones				2Q/04 AH-1Z/UH-1Y MS III
(U) Engineering Milestones	1Q/99 H/W CDR 3Q-4Q/99 S/W CDR			
(U) T&E			1Q/01 1 st Flight	2Q/02-4Q/02 UH-1Y TECHEVAL 1Q/03-3Q/03 UH-1Y OPEVAL 3Q/02-1Q/03 AH-1Z TECHEVAL 2Q/03-4Q/03 AH-1Z OPEVAL
(U) Contract Milestones				2Q/02 UH-1Y LRIP #1 2Q/03 UH-1Y LRIP #2 2Q/04 UH-1Y FRP 2Q/03 AH-1Z LRIP 2Q/04 AH-1Z FRP

R-1 Item No. 90
UNCLASSIFIED

UNCLASSIFIED

EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

DATE: February 2000

BUDGET ACTIVITY: 5

PROGRAM ELEMENT: 0604245N

PROJECT NUMBER: H2279/H2419
PROJECT TITLE: 4BW/4BN

<u>Cost Categories:</u>	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior Yrs Cost</u>	<u>FY 1999 Cost</u>	<u>FY 1999 Award Date</u>	<u>FY 2000 Cost</u>	<u>FY 2000 Award Date</u>	<u>FY 2001 Cost</u>	<u>FY 2001 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
Major Contract	SS CPFF	Bell Helicopter Ft. Worth, TX	7,851	0	-	0	-	0	-	0	7,851	7,851
Award Fee *(See Remarks)			6,557								6,557	
Major Contract	SS CPAF	Bell Helicopter Ft. Worth, TX	123,693	96,717	10/98	165,820	10/99	124,962	10/00	46,196	557,388	550,693
GFE	Various	Various	2,992	6,130	Various	2,196	Various	1,699	Various	0	13,017	
In-House Support (Field Activities)	WX	Various	14,130	8,169	11/98-01/99	11,999	11/99-01/00	10,951	11/99-01/00	20,901	66,150	
In-House Support (Travel)	WX	Various	587	250	10/98	150	10/99	250	10/00	950	2,187	
Trainers	WX	Various	143	3,120	12/98	1,301	12/99	118	12/00	385	5,067	
Subtotal Project Development			155,953	114,386		181,466		137,980		68,432	658,217	
*Remarks: Total award fee pool \$47,496,152. To date \$12,668,250 has been awarded. Period #1 was 90%, period #2 87%, period #3 90%, period #4 77% and period #5 76%. The H-1 award fee clause has a provision that rolls unawarded fee into future periods.												
Technical Engineering Services	C FFP	CCI Inc.	1,075	384	11/98	396	11/99	624	11/00	1,421	3,900	-
Subtotal Support			1,075	384		396		624		1,421	3,900	

Remarks: Target value of Bell contract does not include new efforts not already on contract (FY99-05)

R-1 Item No. 90
UNCLASSIFIED

Exhibit R-3, Project Cost Analysis
(Exhibit R-3, Page 7 of 8)

UNCLASSIFIED

EXHIBIT R-3, FY 2001 RDT&E,N COST ANALYSIS

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PROGRAM ELEMENT: 0604245N

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PROJECT TITLE: 4BW/4BN

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total Prior Yrs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Test and Evaluation		Various	981	1,400	11/98	809	11/99	660	11/00	4,125	7,975	-
Subtotal Test & Evaluation			981	1,400		809		660		4,125	7,975	
Remarks												
Program Office & Logistics Support	C FFP	CCI Inc.	2,300	576	11/98	595	11/99	416	11/00	2,719	6,606	-
Subtotal Management			2,300	576		595		416		2,719	6,606	
Remarks												
Total Cost			160,309	116,746		183,266		139,680		76,697	676,698	

R-1 Item No. 90
UNCLASSIFIED